



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,144	08/22/2003	Arnon Gat	AGX-27-DIV	8736
22827	7590	10/26/2004	EXAMINER	
DORITY & MANNING, P.A. POST OFFICE BOX 1449 GREENVILLE, SC 29602-1449			TOLEDO, FERNANDO L	
			ART UNIT	PAPER NUMBER
			2823	

DATE MAILED: 10/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/646,144		GAT, ARNON	
	Examiner		Art Unit	
	Fernando L. Toledo		2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>20040809</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 22 – 44 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakos et al. (U. S. Patent 5,226,732 A).

In re claims 22 and 44, Nakos, in the U. S. Patent 5,226,732 A; figures 1 – 4 and related text, discloses placing a semiconductor wafer 26 in a substrate holder 18 contained in a thermal processing chamber 10; rapidly heating the semiconductor wafer to a predetermined temperature using a heat source 30; and cooling the semiconductor wafer using an active cooling device 32, the cooling device including a cooling member maintained at a temperature lower than the wafer; wherein the cooling member defines one or more cooling channels for circulating a cooling fluid therethrough and defines one or more gas passages for flowing a cooling gas therethrough; and wherein the gas passage are configured to direct the cooling gas towards the semiconductor wafer and the substrate holder so that the cooling gas contact the semiconductor wafer and cools the wafer (Figure1).

3. In re claim 23, Nakos discloses wherein the cooling gas is cooled by the cooling member (Column 3, Lines 53 – 61).

4. In re claim 24, Nakos discloses wherein the cooling gas is cooled by the cooling fluid circulating through the cooling channels (Column 3, Lines 53 – 61).
5. In re claim 25, Nakos discloses wherein the cooling fluid is a liquid (Column 3, Lines 53 – 61).
6. In re claim 26, Nakos discloses wherein the liquid is water (Column 3, Lines 53 – 61).
7. In re claim 27, Nakos discloses wherein the cooling fluid is a gas (Column 3, Lines 53 – 61).
8. In re claim 28, Nakos discloses further including adjusting the flow of the cooling gas through the one or more gas passages for controlling the cooling of the semiconductor wafer (Column 3, Lines 53 – 61).
9. In re claim 29, Nakos discloses further including adjusting the circulation of the cooling fluid through the one or more cooling channels for controlling the cooling of the semiconductor wafer (Figure 1).
10. In re claim 30, Nakos discloses wherein the cooling device selectively cools the semiconductor wafer (Figure 1).
11. In re claim 31, Nakos discloses wherein the cooling device is stationary relative to the semiconductor wafer and the substrate holder (Figure 1).
12. In re claim 32, Nakos discloses wherein the cooling device is movable relative to the semiconductor wafer and the substrate holder (Figure 1).
13. In re claim 33, Nakos discloses wherein the substrate holder is adapted to hold and rotate the semiconductor wafer (Figure 1).

14. In re claims 34 and 44, Nakos discloses wherein the heat source includes one or more lamps (Figure 1).

15. In re claim 35, Nakos discloses wherein the cooling gas is an inert gas (Column 3, Lines 53 – 61).

16. In re claim 36, Nakos discloses wherein the cooling gas is molecular nitrogen, argon or helium (Column 3, Lines 53 – 61).

17. In re claim 37, Nakos discloses further includes comprising monitoring the temperature of the semiconductor wafer while the wafer is in the thermal processing chamber (Figure 1).

18. In re claims 38 and 44, Nakos discloses wherein a temperature sensing device 48 monitors the temperature of the semiconductor wafer (Column 4, Lines 30 – 33).

19. In re claim 39, Nakos discloses wherein the temperature sensing device is configured to monitor the temperature of the semiconductor wafer at a single location on the wafer or at several locations on the wafer (Figure 1).

20. In re claim 40, Nakos discloses wherein the temperature sensing device is in communication with a controller, and wherein the controller receives temperature information from the temperature sensing device and, based on the information, controls the heating and cooling of the semiconductor wafer (Figure 2).

21. In re claim 41, Nakos discloses wherein the controller is in communication with the heat source, and wherein the controller receives temperature information from the temperature sensing device and, based on the information controls the heat source for controlling the heating of the semiconductor wafer (Column 4, Lines 19 – 30).

22. In re claim 42, Nakos discloses wherein the cooling device further includes a gas source for supplying the gas to the one or more gas passages, the gas source being in communication with the controller such that the controller is configured to control the flow gas from the gas source to the gas passage for controlling the cooling of the semiconductor wafer (Column 4, Lines 19 – 30).

23. In re claim 43, Nakos discloses wherein the controller controls the flow of gas from the gas source to the gas passage based on temperature information received from the temperature sensing device (Column 4, Lines 19 – 30).

Response to Arguments

24. Applicant's arguments with respect to claims 22 – 44 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

25. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

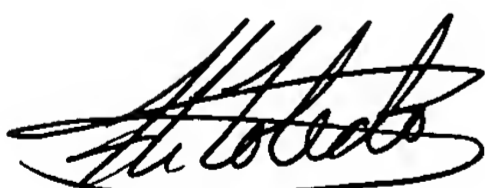
Art Unit: 2823

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fernando L. Toledo whose telephone number is 571-272-1867. The examiner can normally be reached on Mon-Thu 7am to 5:30pm.

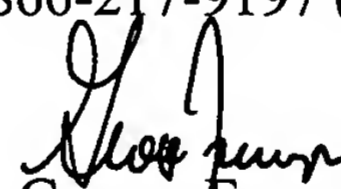
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



FToledo

19 October 2004



George Fourson
Primary Examiner
Art Unit 2823